Technologies that Reduce Particulate Emissions from Diesel-Fueled Engines

Control technologies that reduce particulate emissions from diesel-fueled engines can be classified as either changes in engine design that reduce the formation of particulate emissions, or as add-on controls that reduce particulate emissions from diesel exhaust. Current add-on control technologies under review include oxidation catalysts and particulate filters. The table below lists the products currently being reviewed by the Air Resources Board. This is a preliminary list that will expand as new products and technologies are identified.

Engine Design - Some engine design changes, such as improvements to fuel delivery systems and the addition of ceramic coatings to combustion chamber components, result in lower particulate emissions. These changes tend to enhance combustion by controlling specific actions/reactions within the combustion chamber.

Oxidation Catalyst - Diesel oxidation catalysts oxidize the soluble organic fraction (SOF) of diesel particulate matter. The oxidation catalyst is ineffective at reducing the solid carbon component of diesel particulate matter. Therefore, the total diesel particulate removal efficiency is directly related to the fraction of SOF in the diesel particulate matter.

Particulate Filters - Diesel particulate filters, also known as particulate traps or soot filters, reduce the solid carbon component of diesel particulate matter and may also reduce the SOF, depending on the characteristics of individual particulate filters and their applications.

Product	Manufacturer	Efficiency	Cost
Oxidation Catalysts			
PTX Ultra Plus Catalyst	Engelhard	?	?
CMX Converter Muffler	Engelhard	25%	?
Diesel Catalytic Converter	CATCO	50% - 80%	?
Dieselytic SX	Catalytic Exhaust Products, Limited	?	?
DOC Diesel Oxidation Catalyst	Johnson Matthey	?	?
CEM	Johnson Matthey	Certified 25%	?

Product	Manufacturer	Efficiency	Cost
Particulate Filters			
DPX Soot Filter	Engelhard	?	?
STX Soot Filter	Engelhard	80%	?
Diesel Exhaust Treatment System	CHA Corporation	?	?
3M Basic Cartridge	3M	?	?
3M Concentric Cartridge	3M	?	?
3M Electrical Cartridge	3M	?	?
Trap-Muffler System (with EGR)	Doubletree Technologies	90%	?
Engine Design Changes			
GPX Engine Coating	Engelhard	?	?
ETX Engine Upgrade	Engelhard	65%	?
Cam Shaft - Cylinder Re-Engineering Kit	Clean Cam Technology Systems	<= 0.16 g/bhp-hr	?
Cam Converter Technology CEM II	Johnson Matthey	<= 0.1 g/bhp-hr	?